

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

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PCT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>80376F</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/FI2004/000741</b>	International filing date (day/month/year) <b>07-12-2004</b>	Priority date (day/month/year) <b>05-12-2003</b>
International Patent Classification (IPC) or national classification and IPC <b>See Supplemental Box</b>		
Applicant <b>Frwd Technologies Oy et al</b>		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
  - ☒ (sent to the applicant and to the International Bureau) a total of 6 sheets, as follows:
    - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- |                                     |              |                                                                                                                                                                 |
|-------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report                                                                                                                                             |
| <input type="checkbox"/>            | Box No. II   | Priority                                                                                                                                                        |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability                                                                |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention                                                                                                                                      |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited                                                                                                                                         |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application                                                                                                                |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application                                                                                                           |

Date of submission of the demand <b>05-10-2005</b>	Date of completion of this report <b>28-02-2006</b>
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**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

**PCT/FI2004/000741**

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: **Cover sheet**

**INTERNATIONAL PATENT CLASSIFICATION (IPC) :**

**A61B 5/00 (2006.01)**

**A61B 5/02 (2006.01)**

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/000741

## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☐ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ the international application as originally filed/furnished
- ☒ the description: \_\_\_\_\_ as originally filed/furnished
- pages 1 - 13
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims: \_\_\_\_\_ as originally filed/furnished
- pages \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on 05-10-2005
- pages\* 1 - 6 received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings: \_\_\_\_\_ as originally filed/furnished
- pages 1 - 3
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (specify): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2004/000741

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-9, 11-26</u>	YES
	Claims	<u>10</u>	NO
Inventive step (IS)	Claims	<u>1-9, 13-26</u>	YES
	Claims	<u>10-12</u>	NO
Industrial applicability (IA)	Claims	<u>1-26</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

The claimed invention relates to a method, a system, a measurement device and a receiving device for providing feedback, relating to an activity, to at least one individual. A single measurement device can be used to transmit all relevant information relating to an activity. The receiving device may then decide what pieces of activity information to use.

Documents cited in the International Search Report:

D1: US 6013007 A  
D2: US 2003/0065257 A1  
D3: WO 0142809 A2

This report is based upon the amended claims as filed with the letter of 05-10-2005.

Document D1 discloses a GPS-based personal athletic performance monitor for providing an athlete with real-time performance feedback data (abstract). The feedback is provided through a set of audio headphones using an audio module. The monitor comprises a central processor unit to which different sensors are connected, e.g. a GPS-receiver module and a heart rate sensor (figure 6). Before exercising, the athlete sets his/her preferences using menu control buttons and a display (column 6, line 63-column 7, line 5). Performance data such as elapsed distance, average speed and calories burned are calculated (column 7, lines 40-49). The athlete can choose the

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

type of feedback information, e.g. full or summarized.

Document D2 discloses a diet and activity-monitoring device that includes an activity calculator (90 in figure 4). Activities, for example signals and information from a heart rate sensor and a GPS, are measured (section [0043]) and displayed to the user on a display screen. In one embodiment, a stationary bicycle, that includes a computer that measures speed, duration and other factors, transfers data to the activity calculator (section [0044]). This data transmission is done via a local communication link, probably according to a communication protocol.

Document D3 discloses a system for monitoring athletic performance (abstract). Data from e.g. a GPS and a heart rate sensor (page 22, lines 4-8) are collected and processed. The heart rate sensor could be an external chest-strap sensor. The user's athletic performance statistics are shown on a display unit.

The invention according to claim 10 only states that a plurality of activity quantities are measured and transmitted, during the activity, to at least one receiving device. The invention according to claim 10 is so broadly formulated that it is disclosed by the measurement device in D2. Thus, the invention defined in claim 10 is not new and consequently lacks novelty and inventive step.

The subject matter of claims 11 and 12, i.e. the measured quantities and the calculation of additional pieces of activity information, is only considered to constitute details that are obvious for a person skilled in the art. Consequently, the invention according to claims 11 and 12 fails to involve an inventive step.

The invention according to claims 1-9 and 13-26 differs from documents D1-D3 in that the receiving device, which also provides feedback to the user, is separated from the measuring device. This makes it possible to use a variety of receiving

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## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
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devices. The receiving device may then decide what pieces of information to use. The invention relates to the problem that every activity or sport needs a dedicated measurement device that can be used to analyse the performance.

Documents D1-D3 do not disclose the method, the receiving device and the system according to claims 1-9 and 13-26. No relevant combination of the cited documents would lead a person skilled in the art to the invention defined in those claims. The invention according to claims 1-9 and 13-26 is thus novel and is considered to involve an inventive step.

The invention according to claims 1-26 is considered to be industrially applicable.

**CLAIMS**

1. A method of transmitting measured activity information and providing at least one individual with feedback based on the measured activity information;

5           characterised in that the method comprises the steps of:

          measuring, activity information relating to an activity with a measurement device;

          transmitting, with a measurement device, activity  
10 information to a receiving device via a local communication link during the activity;

          selecting from the received activity information a predefined set of pieces of activity information with the receiving device; and

15           providing, with a receiving device, the at least one individual with feedback based on the selected activity information.

          2. The method according to claim 1, characterised in that said step of providing comprising providing the at least one individual at least  
20 one activity indicator based on the selected activity information with at least one feedback device.

          3. The method according to claim 2, characterised in that prior to said step of providing the method further comprising the steps of:  
25

          calculating at least one additional activity indicator based on the at least one selected activity information; and

          providing the at least one individual individual  
30 with the calculated at least one additional activity indicator with the at least one feedback device.

          4. The method according to claim 2 or 3, characterised in that said step of providing comprising presenting the at least one activity indicator to the at least one individual as at least one  
35 of a graphical form and voice signals.

5. The method according to claim 1, characterised in that prior to said step of transmitting the method further comprising the step of:

calculating at least one additional piece of activity information based on the measured activity information.

6. The method according to claim 1, characterised in that said step of transmitting comprising transmitting activity information according to a communication protocol.

7. The method according to claim 1, characterised in that said step of providing comprising providing the at least one individual with feedback with the receiving device.

8. The method according to claim 1, characterised in that said step of providing comprising providing the at least one individual with feedback with at least one device connected to the receiving device.

9. The method according to claim 1, characterised in that said step of measuring comprising measuring at least one of the following quantities:

time;  
location;  
altitude;  
temperature; and  
heart rate.

10. A measurement device configured to measure and transmit activity information,

characterised in that the measurement device comprises:

a processor (28);  
a plurality of measuring elements (214) configured to measure a plurality of quantities relating to an activity;



a memory (24) configured to store measurement data provided by the measuring elements (214); and

a transmitter (26) configured to transmit activity information to at least one receiving device via a local communication link during the activity according to a communication protocol.

11. The measurement device according to claim 10, characterised in that the plurality of measuring elements (214) comprises at least one of the following:

a GPS receiver (216);  
a barometer (202);  
a thermometer (200); and

at least one pulse coil (22) configured to measure heart rate.

12. The measurement device according to claim 10, characterised in that the processor (28) is configured to calculate at least one additional piece of activity information based on the measured activity information; and the transmitter (26) is configured to transmit the calculated activity information via a communication link.

13. A receiving device configured to receive activity information from a measurement device, characterised in that the receiving device comprises:

a receiver (208) configured to receive, during an activity, a transmission from the measurement device via a local communication link, wherein the transmission includes activity information measured with the measurement device;

a memory (206) configured to store at least one definition based on which a predefined set of pieces of activity information is selected from the received activity information;

a processor (210) configured to select the predefined set of pieces of activity information from the

received activity information based on the at least one definition stored on the memory (206); and

at least one feedback device (212) configured to provide at least one individual with feedback based on the selected activity information.

14. The receiving device according to claim 13, characterised in that the receiving device further comprises an output to which at least one feedback device (212) can be connected.

15. The receiving device according to claim 13 or 14, characterised in that the at least one feedback device (212) is configured to provide the at least one individual with at least one activity indicator based on the selected activity information.

16. The receiving device according to claim 13, 14 or 15, characterised in that the processor (210) is configured to calculate at least one additional piece of activity information based on the at least one selected activity information, and the at least one feedback device (212) is configured to provide the at least one individual with the calculated at least one activity indicator.

17. The receiving device according to claim 13, 14, 15 or 16, characterised in that the at least one feedback device (212) is configured to present the at least one activity indicator to the at least one individual as at least one of a graphical form and voice signals.

18. The receiving device according to claim 13, 14, 15, 16 or 17, characterised in that the at least one feedback device (212) comprises at least one of a display, a speaker and an earpiece.

19. A system of transmitting measured activity information and providing at least one individual with feedback based on the measured activity information,

characterised in that the system comprises:

a measurement device (20) comprising a first processor (28), a plurality of measuring elements (214)  
5 configured to measure a plurality of quantities relating to an activity, a first memory (24) configured to store measurement data provided by the measuring elements (214), and a transmitter (26) configured to  
10 transmit activity information during the activity to at least one receiving device via a local communication link according to a communication protocol; and  
a receiving device (204) comprising a receiver (208) configured to receive a transmission from the measurement device during the activity via a local  
15 communication link, wherein the transmission includes activity information measured with the measurement device (20), a second memory (206) configured to store at least one definition based on which a predefined set of pieces of activity information is selected from  
20 the received activity information, and a second processor (210) configured to select the predefined set of pieces of activity information from the received activity information based on the at least one definition stored on the second memory (206); and at least  
25 one feedback device (212) configured to provide the at least one individual with feedback based on the selected activity information.

20. The system according to claim 19, characterised in that the plurality of measuring elements (214) comprises at least one of the  
30 following:

a GPS receiver (216);  
a barometer (202);  
a thermometer (200); and  
35 at least one pulse coil (22) configured to measure heart rate.

21. The system according to claim 19 or 20, characterised in that the first processor (28) is configured to calculate at least one additional piece of activity information based on the  
5 measured activity information; and the transmitter (26) is configured to transmit the calculated activity information via a communication link to the receiving device.

22. The system according to claim 19, 20 or  
10 21, characterised in that the receiving device (204) further comprises an output to which at least one feedback device (212) can be connected.

23. The system according to claim 19, 20, 21 or 22, characterised in that the at least  
15 one feedback device (212) is configured to provide the at least one individual with at least one activity indicator based on the selected activity information.

24. The system according to claim 19, characterised in that the second processor  
20 (210) is configured to calculate at least one additional piece of activity information based on the at least one selected activity information, and the at least one feedback device (212) is configured to provide the at least one individual with the calculated  
25 at least one activity indicator.

25. The system according to claim 19, 20, 21, 22, 23 or 24, characterised in that the at least one feedback device (212) is configured to present the at least one activity indicator to the at  
30 least one individual ~~as at~~ least one of a graphical form and voice signals.

26. ~~The system according to~~ claim 19, 20, 21, 22, 23, 24 and 25, characterised in that the at least one feedback device (212) comprises at least  
35 one of a display, a speaker and an earpiece.